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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGUYEN, BAO THUY L	

ART UNIT	PAPER NUMBER
1641	

DATE MAILED: 01/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/856,105	CHANDLER ET AL.	
	Examiner	Art Unit	
	Bao-Thuy L. Nguyen	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-11,13-17,19-23,25 and 26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-11,13-17,19-23,25 and 26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendment filed on 19 October 2004 has been received. Claims 5, 12, 18 and 24 have been canceled. Claims 1-4, 6-11, 13-17, 19-23 and 25-26 are pending.

2. The text of those US codes not found in this office action may be found in the previous office action.

3. All rejections not reiterated herein below are withdrawn.

Claim Rejections - 35 USC § 112, second paragraph

4. Claims 1-4, 6-11, 13-17, 19-23 and 25-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 8, 14 and 20 are vague and indefinite with respect to the first wherein clause in part (ii). It is unclear how the detection of a globin-antiglobin complex is accomplished by immobilizing said complex using an immobilized capture molecule. If anything, this is a capturing step and not a "detection" step per se. The specification, at page 17, lines 21-30 states that detection of the complex involves capturing the globin-antibody/colloidal gold complex and detecting the visible pink band due to its concentration during trapping of the complex at this point. Therefore, lacking specific recitation of capturing and detecting the complex, the claims are vague and indefinite.

Furthermore, these claims are vague because it is unclear where on the test matrix the immobilized capture molecule is located.

Claim 20 is vague and indefinite because it is unclear what is being diagnosed. The preamble recites "a method for diagnosing disease conditions, the symptoms of which include bleeding", this implies a positive diagnosis of a specific disease or diseases; however, the correlation step does not specifically state which disease is being diagnosed, only that it is "indicative of a disease condition characterized by lower gastrointestinal bleeding". Therefore, this method appears to be detecting the symptom of a gastrointestinal condition, specifically upper or lower GI bleeding, and not the condition itself, as alluded to in the preamble. Thus, claim 20 lacks a positive correlation between the preamble and the test result.

Claims 25 and 26 are vague and indefinite because it is unclear how colorectal cancer is detected. Claim 25 depends from claim 20 which recites that the results can be related to either upper or lower GI bleeding, therefore, is colorectal cancer related to both upper and lower GI bleeding?

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-4 and 20-23 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for detecting upper or lower gastrointestinal bleeding using a gastrointestinal sample such as a fecal sample, does not reasonably provide enablement for a method of diagnosing the same using any and all types of biological sample. The specification does not enable any person skilled in the art to which it pertains, or with

which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The specification teaches the detection of hemoglobin in a fecal sample using an immunoassay and heme using a chromogen test and relating the results to either upper or lower gastrointestinal bleeding. The specification does not teach that any other types of biological samples may be used to detect hemoglobin and relating the result to upper or lower GI bleeding.

7. Claims 25 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Enablement requires that the specification teach those in the art to make and use the invention without undue experimentation. Factors to be considered in determining whether a disclosure would require undue experimentation include (1) the nature of the invention, (2) the state of the prior art, (3) the predictability or lack thereof in the art, (4) the amount of direction or guidance present, (5) the presence or absence of working examples, (6) the quantity of experimentation necessary, (7) the relative skill of those in the art, and (8) the breadth of the claims.

Claims 25 and 26 are directed toward a method for diagnosing colorectal cancer by detecting either upper or lower GI bleeding. Such a method is not enabled by the specification. The specification teaches the detection of upper or lower GI bleeding by detecting globin and

heme in a fecal sample, nowhere in the specification is there a specific teaching of the diagnosis of colorectal cancer by detecting either upper or lower GI bleeding.

The specification states that upper and lower GI bleeding can be detected by testing fecal samples for heme and globin, and that such GI bleeding may be used as a screening tool for colorectal cancer. However, the specification does not have any data supporting this assertion.

According to Strongin (1993, "Sensitivity, Specificity, and Predictive Value of Diagnostic Tests: Definitions and Clinical Applications", in Laboratory Diagnosis of Viral Infections, Lennette, e., ed., Marcel Dekker, Inc., New York, pp. 211-219) a number of characteristics need to be considered in the development of any suitable diagnostic assay. These characteristics include the following: (1) the sensitivity of the assay; (2) the true-positive test rate; (3) the false-negative test rate; (4) the specificity, or percentage of patients without the disease who will display a negative results; (5) the true-negative test rate; (6) the false-positive test rate; (7) the predictive value, or the probability that the test result is correctly indicating the presence or absence of the disease; (8) the prevalence, or number of patients in any given population that have the disease in question; (9) the efficiency or percentage of all results that are true; (10) the accuracy of the recited diagnostic assay. Additional considerations must also be examined to enable the clinician to practice the invention including assessment of the following: (1) when is the maximum sensitivity desired?; (2) when is the maximum specificity desired?; (3) when is the maximum efficiency desired?; (4) How is the maximum sensitivity or specificity achieved?; (5) how is the predictive value maximized? An essential understanding of these factors is required to enable the skilled artisan to accurately use and interpret any given diagnostic test. Since the specification lacks any teaching of how the diagnostic tests were performed, or any information regarding the patients from which the samples were taken, and whether any considerations

were given to any of the characteristics state above, it would require undue experimentation for one skilled in the art to make and use the invention as claimed.

The specification lacks proper guidance to enable one skill in the art to diagnose colorectal cancer as related to upper or lower GI bleeding. The specification further lack proper guidance to enable one skilled in the art to correlate colorectal cancer with either upper or lower GI bleeding.

Therefore, it is maintained that one of ordinary skill in the art could not make and use the invention as claimed without undue experimentation.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-4, 6-11, 13-17 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrows et al., (American Journal of Clinical Pathology. 1978. Vol. 69, No. 3, pp. 342-346).

Barrows discloses an immunochemical test for human blood in feces using goat antibodies to hemoglobin. Barrows teaches that immunochemical identification of human blood in stool offers improved detection of lower gastrointestinal bleeding. Barrows teaches testing the samples using a radial immunoassay (RID) and the guaiac peroxidase method, and concludes that when both guaiac and RID tests were positive, 65% of the patients has documented sources of blood loss of the lower gastrointestinal tract. See page 343 and 344.

Barrow teaches that patients with positive guaiac tests (heme) and no detectible blood by RID (globin) did not have evidence of lower gastrointestinal blood loss and about 25% has upper gastrointestinal bleeding. See page 345, table 3.

Barrows differs from the instant invention in failing to teach the use of a lateral flow chromatographic medium for the detection of occult blood.

Kuo, however, discloses the use of a flow matrix for detecting pairs of clinically related analyte. See column 2, line 24 through column 3, line 23. Kuo discloses that immunochromatographic test strips are ideal for providing a viable system for the determination of various analytes and provide quick and convenient means of determining those second analytes whose concentration or presence in the body fluid sample is clinically related to the concentration of the target analyte. See column 8, lines 8-12.

And Sy discloses a chromatographic medium for detecting analytes such as occult blood in a fecal sample. Pages 24-26.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method taught by Barrows in order to simultaneously detect globin, using an immunochemical test, and heme, using a guaiac test, on the device of Kuo because Sy teaches that chromatographic medium are adaptable for detection of occult blood and analytes from a fecal samples. A skilled artisan would have had a reasonable expectation of success in adapting the device of Kuo as taught by Sy to detect globin and heme because Barrows teaches that immunoassay to specifically detect hemoglobin provides a more sensitive and accurate test for upper and lower GI bleeding. Immunoassay assay also provide the additional advantage that it can be performed in laboratory facility with a minimum of

equipment. A combination test for heme and globin incorporates the best features of the various tests for subclinical lower gastrointestinal bleeding.

Response to Arguments

10. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bao-Thuy L. Nguyen whose telephone number is (571) 272-0824. The examiner can normally be reached on Tuesday and Thursday from 8:00 a.m. -3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V. Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bao-Thuy L. Nguyen
Primary Examiner
Art Unit 1641
1/3/05